

Some Megadrili Oligochaeta of the Caribbean Region

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Some Megadrili Oligochaeta of the Caribbean Region – This study examines 10 species of Megadrili Oligochaeta indicating new occurrences of *Pontoscolex (P.) corethrurus*, *Ocnerodrilus occidentalis*, *Amyntas rodericensis*, *Polypheretima elongata*, *Perionyx excavatus*, *Pontodrilus bermudensis*, *Dichogaster bolau*i, *D. gracilis*, and *Eudrilus eugeniae*. It also describes the Glossoscolecidae, *Diachaeta (D.) bonairensis*, n. sp.

Key-words: Oligochaeta - Megadrili - Glossoscolecidae - *Diachaeta bonairensis* n. sp. - Caribbean.

INTRODUCTION

Since 1930 Dr P. Wagenaar Hummelinck has been collecting and studying Caribbean fauna and flora intensively. Through his own papers and those of other scholars working with his collections he has become one of the main people responsible for the knowledge of the natural history of this important neotropical subregion. Dr Wagenaar Hummelinck kindly let me study part of his Oligochaeta collection for which I am very grateful. The numerous samples of Microdrili, mainly Naididae, are being studying and the Megadrili, mainly peregrine anthrochorous species, are presented here.

The studies were made by dissections, pieces mounted in glycerin-water (1:1) and microscopical sections, 10 µm, stayned by Mallory's triple method. A part of the material is deposited in the Department of Zoology, University of S. Paulo (ZU) and the other part is in the Muséum d'Histoire Naturelle, Genève.

LIST OF LOCALITIES

GRANDE CAYMAN

- 960 South Sound, 20.V.1973; alt. 1 m; sandy beach with decaying sea grass, mainly *Thalassia*.

PUERTO RICO

- 695 Las Mesas, E of Mayagüez, 20.IX.1963; alt. 300 m; werathered soil; grove of mango and other trees; wet leaf decay of Mangifera, under piece of wood.

ST. MARTIN

- 830 Baie aux Cailles, Terres Basses, 28.VII.1967; alt. 1/4 - 1/2 m; sandy beach; wet decay of mainly *Syringodium*.

SABA

- 439C Behind the Mountain (top of Mt. Scenery), 8.VII.1973; alt. 810 m; bananas, dead trees, mosses, decaying leaves, mould and rock fragments on clayish soil.

MONTSEERAT

- 837 Plymouth, Agr. Exper. Gardens, 20.VII.1967; alt. 10 - 20 m; cultivated area; some plant debris.

DOMINICA

- 843 Roseau, Botan. Garden, 14.VII.1967; alt. 50 ? m; cultivated area; leaf decay, dead wood and mould.

MARTINIQUE

- 764 Islet Hardy, beach W, 11.II.1964; alt. 1/4 m; sand; thick layer of wet algae.

BARBADOS

- 869 Wiltshire's Spring, Marley Vale, St. Philips, 100 m from shore, 6.VII.1967; water body >10 x 1/4 x 1/20 m; rapidly flowing from limestone debris; some small algae (amphipods and shrimps); 210 mg Cl' /l.

BONAIRE

- 44Bb Pos Bronswinkel, Nat. Park Washington, gutter of overflow, 19.III.1970; flowing water; 580 mg Cl' /l.

- 48g Fontein, near spring, 8.IX.1967; part of gutter near spring, 20 x 20 cm, flowing water est. at 900 l/h; muddy leaf and decay in shade, a few algae; 28.5 C; 400 mg Cl' /l.

- 48Aa Idem, cemented gutter feeding cisterns, 8.IX.1967; crowded with roots and algae; flowing water; ?400 mg Cl' /l.

- 48Ab Idem, ibidem, 8.III.1970; coating of algae; ?400 mg Cl' /l.

- 48Ac Idem, ibidem, 17.VIII.1973; in part stagnant, much slimy algae; abt. 450 mg Cl' /l.

- 48E Idem, overflow of cistern in Hofje, 8.IX.1967; temporary sandy mud; abt. 500 mg Cl' /l.

- 52g Pos Ichi, S of Kralendijk, 17.III.1970; water body 3 x 1 x 1/2 m; stagnant; permanent; natural made accessible, deepened; coral-limestone soil neighbour; botton with diabase-detritus mud and rocks; algae often detached; turbid, brownish-yellow water; 28-34 C; pH 7.9-8.1; 100 mg Cl' /l. Crab hole.

- 193C Fontein, Hofje, 8.IX.1967; alt. 22 m; mosses and limestone deposits from water overflow on wall.

- 872 Lac, Playa Mangel Altu, 23.VIII.1967; alt. 0-1 m; sand; dry and wet decay of *Thalassia*, *Syringodium*, *Avicennia*, driftwood.

- 937 Hofje Bronswinkel, Nat. Park Washington, 19.III.1970; alt. 40 m; porfiritic rocks; abandoned fruit garden; xerophitic scrub; scant debris, decaying cacti.

- 1065 Lac, entrance to Poejito, 17.IX.1948. Mudflat with *Halimeda* and *Thalassia*; lower zone.

CURAÇAO

- 819 Boca Grandi, Savonet, beach, 19.XI.1963; alt. 1/2 m; sandy beach with limestone; decaying *Sargassum*.

- 904 Awa di Oostpunt, 21.IX.1968; alt. 1/4 m; sandy beach; decaying *Thalassia*.

VENEZUELA

- 919 Caracas, Jardim Botanico, 10.XI.1968; alt. 900 m; rocky slope near Inst. Botan.; debris and decay.

SURINAME

- 829 Suriname River at Brokopondo, 27.II.1964; pools in dry river bed after closure of dam on Feb. 1st; abt. 50 mg Cl' /l.

For more details and maps of the localities see Hummelinck (1940a; 1940b; 1953; 1977; 1981).

LIST OF SPECIES WITH LOCALITIES

The number between brackets denotes examined specimens.

GLOSSOSCOLECIDAE

Diachaeta (D.) *bonairensis*, n. sp. - Bonaire 937 (1).

Pontoscolex (P.) *corethrurus* (Müller, 1857) - Dominica 843 (1); Suriname 829 (15).

Ocnerodrilidae

Ocnerodrilus occidentalis Eisen, 1878 - Bonaire 44Bb (9), 48Aa (12), 48Ab (6), 48Ac (5), 52g (1), 193C (21), 1065 (1).

Megascolecidae

Amyntas rodericensis (Grube, 1879) - Puerto Rico 695 (3); Saba 439C (1); Venezuela 919 (2).

Polypheretima elongata (Perrier, 1872) - Bonaire 48E (1).

Perionyx excavatus (Perrier, 1872) - Dominica 843 (9).

Acanthodrilidae

Pontodrilus bermudensis Beddard, 1891 - Grand Cayman 960 (9); St. Martin 830 (14); Martinique 764 (3); Bonaire 872 (8); Curaçao 819 (7), 904 (5).

Octochaetidae

Dichogaster bolaii (Michaelsen, 1891) - Bonaire 48g (1), 48Aa (1), 48Ab (2), 48E (19), 193C (4).

Dichogaster gracilis (Michaelsen, 1892) - Montserrat 837 (2).

Eudrilidae

Eudrilus eugeniae (Kinberg, 1867) - Saba 439C (12); Barbados 869 (1).

***Diachaeta* (D.) *bonairensis*, n. sp.**

(Figs 1-10)

MATERIAL

Bonaire 937 - 1 clitellate specimen (ZU-1122).

DESCRIPTION

Length 210 mm. Diameter in the pre-clitellar region (segment x) 4.3 mm, in the clitellum 6.0 mm, in the median and posterior body region 2.6 - 3.0 mm. Number of segments 386. Pigment absent. The invaginated prostomium is tentaculiform and as long

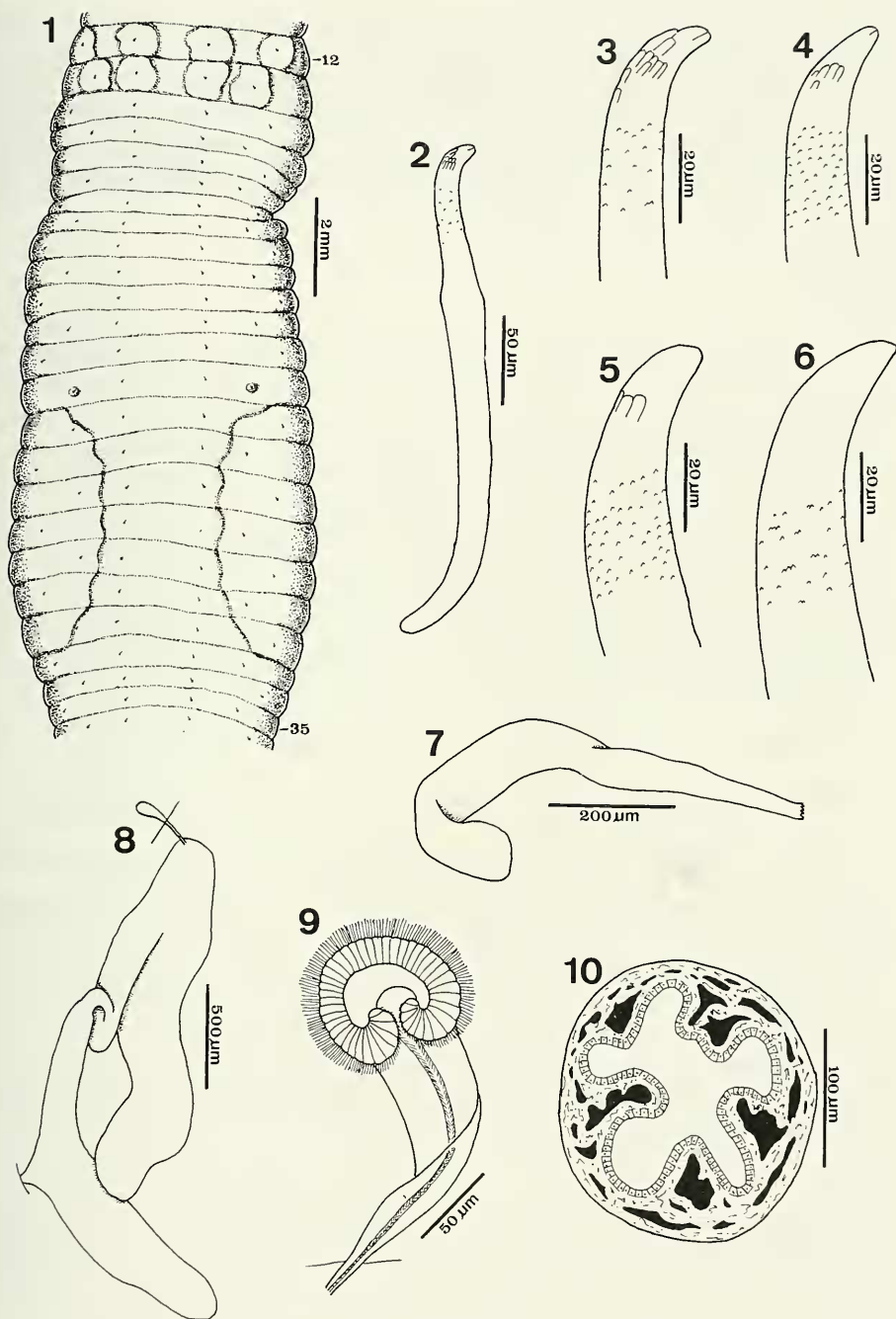
as segments I-IV; its longitudinal musculature is continuous with that of V. The surface of the segments I and II have longitudinal furrows, the others are smooth. There are 8 setae per segment from II to the back. The setae *a* are arranged in 2 regular series and the setae *b*, *c* and *d* have alternate disposition in successive segments (Fig. 1). They are lengthened sigmate, the nodulus is distal and the apical half is ornamented (Fig. 2). In the median body region the setae apex is slightly bicuspid and the convex portion has many truncate scales (Fig. 3), occasionally a few ones (Fig. 4). In the posterior body region the setae are unicuspidate with some scales (Fig. 5), sometimes the scales are missing (Fig. 6). The sub-apical region of every setae has a lot of small thorns, which are isolated or clustered in small transverse groups. The setae length varies in the middle-body region from 220-288 μm ($M = 255 \mu\text{m}$) and in the posterior region from 246 - 372 μm ($M = 343 \mu\text{m}$), the setae *a* are the biggest. There are no genital setae.

The dark-grey clitellum lies in XVIII-XXXIII (= 16), it is ring-shaped in XVIII-XXXIII and saddle-shaped backwards. One pair of wide puberal ridges extends from XXVI-XXXII (Fig. 1); its lateral margin is straight near the nephridiopores line and the medial one is re-entrant in *ab* of every segment. Roughly quadrangular genital papillae contain each seta *a* and *b* of XII and XIII. One pair of small and prominent areas contains setae *b* of XXV. The microscopical male, female and spermathecal pores are not seen from the outside.

The septa 6/7-10/11 are very thick and muscular, the 11/12 is only a little thickened and the others are slender and fragile. The septa 6/7-20/21 are like interpenetrated cones; the others are flat. The parietal insertion of the septa 6/7-10/11 are regular all along their corresponding intersegmental furrows; the septum 11/12 attaches dorsally to intersegment 13/14 and ventrally to its own intersegment; the insertion of the following septa becomes successively more regular to 20/21. One cylindrical and strongly muscular gizzard lies in VI. The oesophagus has whitish lateral swellings in VII-IX, and three pairs of small fingerlike calciferous glands open under the swellings. Each gland has a wide axial cavity and some thick longitudinal lamellae (Fig. 10). The transition oesophagus-intestine is in 20/21. The intestine is enlarged in XXI-XXXIV, with small dorsal typhlosole. The typhlosole height grows up to XL and it continues backwards like a simple, slightly wavy blade as high as the intestinal diameter. The dorsal vessel is moniliform from XXI to the front, it does not make lateral loops. The subneural vessel is recognized from XII to the back. There are 2 pairs of strong intestinal hearts in X-XI and 3 pairs of slender lateral hearts in VII-IX. Every segment has one pair of holonephridia (Fig. 8). The nephridiopores open in the dorsal line of setae *c* without well marked sphincter. The post-clitellar nephridial funnel is simple with a horse-shoe upper lip (Fig. 9).

The pair of testis sacs fuses dorsally and ventrally in XI making a wide ring around the oesophagus and hearts. The pair of bandlike seminal vesicles runs on the

Diachaeta (D.) bonairensis: 1. Ventral surface of segments XII-XXXV. 2. Ventral setae of the mid-body region. 3-4. Apex of mid-body setae. 5-6. Apex of posterior setae. 7. Spermatheca of 8/9. 8. Post-clitellar nephridium. 9. Funnel of post-clitellar nephridium. 10. Cross section of one calciferous gland.



sides of the intestine to CL; its surface is smooth up to XLIV and nodular to the back; from XCV on they send out short branches, someones are bifurcated. The male ducts run on the inner surface of the body wall to 27/28, where they pierce the parietes in the median line of the puberal ridges. Ovaries and female funnels are not seen. Three pairs of spermathecae lie in VI-VIII, they open in the dorsal line of setae *c* in 6/7-8/9. The spermathecae are saclike, without distinction between duct and ampulla (Fig. 7). The spermathecae of 6/7 are the smallest and the others are alike.

REMARKS

Diachaeta (*D.*) *bonairensis* has many affinities with *D. (D.) thomasi* Benham, 1887 (known from Jamaica, Saint Thomas and Curaçao) and with *D. (D.) hesperidium* (Beddard, 1893) *sensu* RIGHI (1984) (known from Jamaica and Trinidad). The main character to distinguish the three species is the position of the male pores; which lies in segment XXII of *thomasi*, XXIV of *hesperidium* (Beddard, 1895) and intersegment 27/28 of *bonairensis*. Other distinctive characters are the clitellum and the setae. The clitellum extends from XX-XXXIII in *thomasi*, XXIV-XXXI in *hesperidium* (probably not fully developed) and XVIII-XXXIII in *bonairensis*. The setae are smooth, not ornamented, in *thomasi*; they present a cluster of spines in the apical convex side in *hesperidium*; and they have flat truncate scales in the apical convex side and a great number of small thorns throughout their subapical portion in *bonairensis*.

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